Patent claims

1. A device for controlling an absolute transmission time of a continuous transmission signal in a transmitting/receiving unit, in particular a transmission signal in a radio station, having

- a correction unit (2) for production of an output data signal (302),
- a sequence control unit (5), which is connected downstream from the correction unit (2) and produces a working clock signal (202),
- a counter unit (6), which is electrically connected to the sequence control unit (5) and uses the working clock signal (202) from the sequence control unit (5) to generate an internal actual transmission time signal (203), and having
- a control device (1), which compares the internal actual transmission time signal (203) with an external nominal transmission time signal (101), which is received from the transmitting/receiving unit, to produce a correction signal (103), and transmits this correction signal (103) to the correction unit (2) in order to correct the actual transmission time.

2. The device as claimed in claim 1,
characterized in that
the control device (1) has a comparator unit (12), in particular a comparator, which compares the actual transmission time signal (203) with the nominal transmission time signal (101), and produces a difference signal (102) from the discrepancy between the two transmission times.

3. The device as claimed in claim 2,
characterized in that

the control device (1) has a control unit (13), in

particular a microprocessor, which is connected downstream from the comparator unit (12) and uses a difference signal (102), which is generated by the comparator unit (12) from the comparison of the actual transmission time signal (203) with the nominal transmission time signal (101),

to produce the correction signal (103).

4. The device as claimed in one of claims 2 or 3, characterized in that
the control device (1) has a time control unit (11) which is connected upstream of the comparator unit (12) and transmits the external nominal transmission time signal (101) to the comparator unit (12).

5. The device as claimed in one of the preceding claims,
characterized in that
the correction unit (2) is a fractional sampling rate converter unit (2) with a variable conversion ratio.

6. The device as claimed in one of the preceding claims,
characterized by
a signal processing unit (3) for production of an input data signal (204), which unit is connected downstream from the counter unit 6 and from the sequence control unit (5), and is connected upstream of the sampling rate converter unit (2).

7. The device as claimed in one of the preceding claims,
characterized by
a D/A converter (7), which is connected downstream from the sampling rate converter unit (2) and produces an analog transmission signal (303) as a function of the output data signal (302) and of a sampling clock signal (301) from a sampling clock source (4).

8. The device as claimed in one of the preceding claims,

characterized in that

the transmitting/receiving station is a mobile station which, in particular, supports one of the standards UMTS or GSM

9. A method for controlling the transmission time of a continuous transmission signal in a transmitting/receiving

unit, in particular a transmission signal in a radio station, which has the following steps:

a) production of an internal actual transmission time signal (203) in the transmitting/receiving unit, containing information about the actual transmission time,

b) comparison of the internal actual transmission time signal (203) with an external nominal transmission time signal (101) which is received from the transmitting/receiving unit and which contains information about a nominal transmission time,

c) production of a difference signal (102) in the transmitting/receiving unit, which contains information about the discrepancy (T_{diff}) between the two transmission times,

characterized in that

the actual transmission time is corrected in the transmitting/receiving unit such that the discrepancy (T_{diff}) between the two transmission times, contained in the difference signal (102), is minimized, the correction is carried out independently of the defined clock period of the basic radio system, and the time period for the correction is set variably therein.

10. The method as claimed in claim 9,
characterized in that
the time duration of the correction is set by the value of the conversion ratio of a fractional sampling rate converter unit 2 and of the time duration for which this conversion ratio is activated.

11. The method as claimed in one of claims 9 or 10,
characterized in that
the discrepancy of (T_{diff}) between the transmission

times is minimized such that an input data signal (204) is compressed or extended in time.

12. The method as claimed in claim 11, characterized in that

the input data signal (204) is compressed or stretched by reducing or increasing the conversion ratio of the fractional sampling rate converter unit (2).

13. The method as claimed in claim 12,
characterized in that
a correction signal (103) is applied to the fractional sampling rate converter unit (2) and is used to change the conversion ratio such that the conversion ratio is set either to a value which is predetermined and fixed for a steady-state system, or to a value which corresponds to extension or compression of the transmission signal (204).

14. The method as claimed in claim 13,
characterized in that
the correction signal (103) contains as information the value to which the conversion ratio is changed, the time period for which the changed conversion ratio is used, and the time at which the changed conversion ratio is activated.

15. The method as claimed in claim 14,
characterized in that,
after undershooting a threshold value for the time discrepancy (T_{diff}) determined between the two transmission times, the correction signal (103) is deactivated, and the conversion ratio is set to the value defined for the steady state.

16. The method as claimed in one of claims 11 to 15,
characterized in that
the input data signal (204) is compressed or stretched such that no information is removed from or added to the

input data signal (204).

17. The method as claimed in one of claims 9 to 16, characterized in that
the actual transmission time is corrected over various clock domains of the transmitting/receiving unit, which have different or identical clock durations, and the external nominal transmission time signal (101) is generated in a clock domain which is different to the clock domain which is clocked by the working clock (202), and which is not necessarily in synchronism with this clock domain.

18. The method as claimed in claim 17, characterized in that
the sampling rate converter unit 2 produces a control signal (201) by means of which the working clock (202) in the transmitting/receiving unit is controlled, in particular a signal processing unit (3) which produces the input data signal (204).

19. The method as claimed in one of claims 9 to 18, characterized in that
the edges of a working clock signal (202) are counted by means of a counter unit 4 in order to determine the actual transmission time.

20. The method as claimed in claim 19, characterized in that
the actual transmission time signal (203) is produced by the counter unit (4), and the count of the counter unit (4) is determined as the actual transmission time.

21. The method as claimed in one of claims 19 or 20, characterized in that
the counter unit (6) is reset periodically and, in

particular, is reset when the transmitting/receiving unit is in the steady state, with the period duration of the nominal transmission time signal (101).

22. The method as claimed in one of claims 9 to 21, characterized in that
the transmitting/receiving unit is a mobile station, and supports a mobile radio standard, in particular the UMTS or GSM.